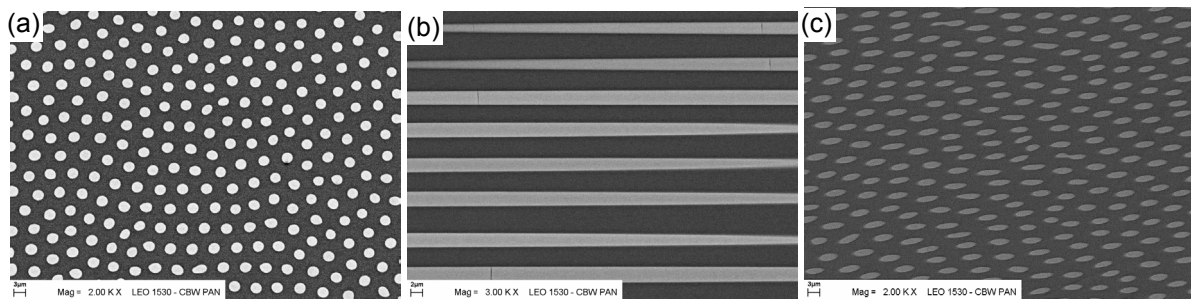


Self-organized micro-structures of $\text{Tb}_3\text{Sc}_2\text{Al}_3\text{O}_{12}/\text{TbScO}_3$ eutectic doped with Pr ions and their spectroscopic properties

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The self-organized dielectric micro-structures of two phases: $\text{Tb}_3\text{Sc}_2\text{Al}_3\text{O}_{12}$ and TbScO_3 will be presented. Their growth is based on directional solidification of binary eutectics by the micro-pulling down method. The phases can be doped selectively for example with active elements such as lanthanide ions eg. Pr. Their spectroscopic properties will be presented. On Fig. 1 the eutectic microstructure is presented: (a) the cross-section, and (b), (c) the longitudinal sections. The properties of the material (such as lasing properties) together with the pseudo-periodic microstructure give the potential for these materials to be used as photonic crystal structures.



[1] D. A. Pawlak, G. Lerondel, I. Dmytruk, Y. Kagamitani, S. Durbin, T. Fukuda, *J. Appl. Phys.*, **91**, 9731 (2002).